WHAT IS CLAIMED IS:

1. A medical system to warn of spinal cord, brainstem or brain injury or brain dysfunction of a subject comprising:

(a) at least one active EEG (electroencephalograph) electrode means to detect a subject's brain waves;

(b) stimulus means to provide concurrent sense stimuli in two or more different stimulus modes (sensory modalities) to the subject, the stimuli in one mode being at frequency F_1 and the stimuli in the other modes(s) being at a different frequency F_2, F_3, etc.;

(c) amplification means to amplify and digitize the detected brain waves;

(d) ratio means to receive the digitized brain waves from (c) and produce subject brain wave F ratio data based on the power of brain responses at each of F_1 and F_2 in the presence and absence of stimulation;

(e) a receiver including a computer means to compare the subject brain wave F ratio data from (d) with brain wave F ratio data based upon a normal group of patients or in the presence or absence of stimulation; and

(f) a warning means in the hand-held receiver to warn if the subject's brain wave F ratio data is abnormal based on the comparison of (e).

2. A medical system as in claim 1 and including FFT means to perform Fast Fourier Transform (FFT) of the digitized brain waves to generate a power spectrum.

3. A medical system as in claim 2 wherein the F ratio data is an F ratio based on the generated power spectrum and the power of brain responses at each of F_1 and F_2 in the presence and absence of stimulation.

4. A medical system as in claim 1 wherein the F ratio data is an F ratio between the power at F_1 or F_2: P(Fi) / P(AV) where average power $P_{(AV)}$ is across $\underline{N}$ bins above and below F_1 or F_2.

5. A medical system as in claim 1 and including means to validate the digitized brain waves by comparing odd and even split-half segments of data from the same electrode, under the same stimulus and about the same time and rejecting segments that are atypical, using a fiducial electrode to assess stationarity.

6. A medical system as in claim 2 wherein the FFT is a very narrow band FFT in increments in the range of 0.05 - 0.5 Hz.

7. A medical system as in claim 1 and, in the receiver, report means to generate a report on the comparison of (e) and transmission means to transmit the report to a base station.

8. A medical system as in claim 1 and means to modulate a carrier wave to modulate the amplified brain waves and to generate an audio signal therefrom.

9. A medical system as in claim 1 wherein the stimulus means includes means to generate an audio click and a somatosensory stimulus produced by applying a constant current or voltage or tactile vibration to sensitive regions of the subject.

10. A medical system as in claim 1 wherein the statistical evaluation of computed measures from the patient (P) is by computing the Z-score, where $Z = (M-P)/\sigma$ and M is the mean value of a normative distribution, P is the current measure from the patient and σ is the standard deviation of the normal age-matched population.

11. A medical system as in claim 1 and including a headband carrying thereon the electrode means and amplification means.

12. A medical system as in claim 1 including a plurality of homologous pairs of electrodes and means to determine asymmetry above a threshold level of the subject's brain waves at the homologous pairs of electrodes.

13. A medical system as in claim 1 and including a headband having thereon the electrode means, amplifier means and a radio broadcast transmitter.

14. A medical system to warn of brain injury comprising:

(a) at least one active EEG (electroencephalograph) electrode means to detect a subject's analog brain waves, connection means to removably connect the electrode means to a subject's head;

(b) amplification means on the connection means to amplify the detected brain waves;

(c) radio broadcast means on the connection means to generate a brain wave broadcast signal by modulating a carrier signal with the detected analog brain waves and to broadcast the brain wave signal broadcast;

(d) a hand-held radio receiver means to receive and amplify the broadcast brain wave signal; and

(e) sound generating means in the hand-held receiver to demodulate the amplified broadcast brain wave signals and to convert demodulated brain waves into tone-like sounds which may be recognized by an operator as reflecting brain damage.

15. A medical system as in claim 14 wherein the connection means is a headband.

16. A medical system as in claim 14 wherein the radio receiver means includes appropriate filter means to select a frequency band from the group of frequency bands of the broadcast brain waves.

17. A medical system as in claim 14 wherein the group of frequency bands comprises delta, theta, alpha and beta bands.

18. A medical system to warn of brain injury to a subject's head, the device comprising:

(a) an attachment means to removably attach an electrode to the subject's head, at least one EEG (electroencephalograph) electrode means carried on the attachment means to detect a human subject's brain waves;

(b) amplification means in functional connection with the electrode means to amplify the detected brain waves and analog/digital convertor means to digitize the detected brain waves and to product the subject's digitized brain wave data therefrom;

(c) a brain wave computer analyzer means on the attachment means to compare the subject's brain wave data with a brain wave data based upon a normal group of subjects stored in the analyzer means; and

(d) a warning means on the attachment means to warn if the subject's brain wave data is abnormal based on the comparison of (c).

19. A medical system as in claim 18 and including means to validate the digitized brain waves by comparing split-half segments of data from the same electrode and under the same stimulus and about the same time and rejecting segments that do not match.

20. A medical system as in claim 18 wherein the warning means is a plurality of lights or an alphanumeric display panel.

21. A medical system as in claim 18 wherein the attachment means is a patch and the electrode means is a single electrode.

22. A medical system to warn of brain injury to a subject's head, the device comprising:

(a) an attachment means to removably attach an electrode to the subject's head, at least one EEG (electroencephalograph) electrode means carried on the attachment means to detect a human subject's brain waves;

(b) amplification means in functional connection with the electrode means to amplify the detected brain waves and analog/digital convertor means to digitize the detected brain waves and to produce the subject's digitized brain wave data therefrom;

(c) radio transmitter means on the attachment means to broadcast the subject's brain wave data after amplification and modulation;

(d) a remote radio receiver and demodulator to receive and demodulate the brain wave data;

(e) a brain wave computer analyzer means to compare the subject's brain wave data with a brain wave data base based upon a normal group of subjects stored in the analyzer means; and

(f) a warning means on the attachment means on the receiver to warn if the subject's brain wave data is abnormal based on the comparison of (e).

23. A medical system as in claim 22 wherein the warning means is a plurality of lights, an audio device or an alphanumeric display panel.

24. A medical system as in claim 22 wherein the attachment means is a patch and the electrode means is a single active electrode and a reference and ground.

25. A medical system as in claim 22 wherein the transmitter means is a radio transmitter or a cellular telephone.

26. A medical system as in claim 22 wherein the transmitted brain wave data includes data from a series of sequential observations.

27. A medical system as in claim 26 wherein the series of sequential observations is divided into an odd and an even split-half and replication of findings between the split halves is used to validate results.

28. A medical system as in claim 22 wherein the series of quantitative measures extracted from the data are used to construct a state trajectory.

29. A medical system as in claim 22 and further including, in the receiver, means to produce an audio output from a broadcast carrier which is modulated by the subject's brain waves.

30. A medical system as in claim 22 and further including an EKG (electrocardiograph) amplifier in the receiver means, an EKG electrode adapted to be removably connected to the subject and connected to the EKG amplifier, and display means in the receiver to display heart beats and the digitized heart rate of the subject.

31. A medical system as in claim 22 and further including a blood pressure monitor in the receiver means, a blood pressure cuff adapted to be removably connected to the subject, and display means in the receiver to display the blood pressure of the subject.

32. A medical system as in claim 22 and further including a blood oxygen meter in the receiving means, an oxygen probe adapted to be removably connected to the subject, and display means in the receiver to display the blood oxygen level of the subject.

33. A medical system as in claim 22 and further including in the receiver, report means to generate a digital data report based on the comparisons of (e), and broadcast means on the receiver to broadcast the report.

34. A medical system as in claim 33 and wherein the receiver is a hand-held local radio receiver, the attachment means includes a radio transmitter to the local receiver, and the receiver includes transmission means to transmit a brain wave data report to a remote receiver.

35. A medical system as in claim 22 wherein the attachment means includes a headband.

36. A medical system as in claim 22 and including at least three electrode means and three amplification means as well as reference and ground electrodes.

37. A medical method to warn of spinal cord, brainstem or brain injury or brain dysfunction of a subject comprising the steps of:

(a) attaching to a subject at least one EEG (electroencephalograph) electrode means to detect the subject's brain waves;

(b) providing concurrent sense stimuli in two or more different stimulus modes to the subject, the stimuli in one mode being at frequency F_1 and the stimuli in the other mode(s) being at a different frequency F_2, F_3, etc.;

(c) amplifying and digitizing the detected brain waves;

(d) receiving the digitized brain waves from (c) and producing subject brain wave F ratio data based on the power of brain responses at each of F_1 and F_2 in the presence and absence of stimulation;

(e) comparing the subject brain wave F ratio data from (d) with brain wave F ratio data based upon a normal group of patients or in the presence or absence of stimulation of the patient in a receiver including a computer means; and

(f) generating a warning signal in the hand-held receiver to warn if the subject's brain wave ratio data is abnormal based on the comparison of (e).

38. A medical method as in claim 37 and including performing Fast Fourier Transform (FFT) of the digitized brain waves and generating a power spectrum therefrom.

39. A medical method as in claim 38 wherein the F ratio data is an F ratio based on the generated power spectrum and the power of brain responses at each of F_1 and F_2 in the presence and absence of stimulation.

40. A medical method as in claim 37 wherein the F ratio data is an F ratio between the power at F_1 or F_2: P(Fi) / P(AV) where average power $P_{(AV)}$ is across $\underline{N}$ bins above and below F_1 or F_2.

41. A medical method as in claim 37 and validating the digitized brain waves by comparing odd and even split-half segments of data from the same electrode, under the same stimulus and about the same time and rejecting segments that do not satisfy criteria for stationarity.

42. A medical method as in claim 38 wherein the FFT is a very narrow band FFT in increments in the range of 0.05 - 0.5 Hz.

43. A medical method as in claim 1 and generating a report, in the hand-held receiver, on the comparison of (e) and transmitting the report to a base station.

44. A medical method to warn of brain injury comprising the steps of:

(a) removably connecting at least one active EEG (electroencephalograph) electrode to the head of a subject using connection means and detecting the subject's analog brain waves;

(b) amplifying the detected brain waves using amplification means on the connection means;

(c) generating a brain wave broadcast signal, using radio broadcast means on the connection means and modulating a carrier signal with the detected analog brain waves and broadcasting the brain wave signal;

(d) receiving and amplifying the broadcast brain wave signal using a hand-held radio receiver; and

(e) generating tone-like sounds using the hand-held receiver by demodulating the amplified broadcast brain wave signals and converting the demodulated brain waves into tone-like sounds which may be recognized by an operator as signifying brain damage.